

REMARKS/ARGUMENTS

Claims 35-66 are pending in the instant application. The Examiner objected to the Information Disclosure Statements filed. Claims 35, 40, 41, 46, 47, and 66 stand rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-2 and 10-12 of United States Patent No. 6,311,086. Claims 35 and 46-47 stand rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-2 and 10-12 of United States Patent No. 6,278,893. Claim 39 stands objected to under 37 CFR 1.75(c). Claim 49 stands objected to for being a method claim which depends from an apparatus claim. Claims 45 and 52 stand rejected under 35 U.S.C. § 112 as failing to comply with the enablement requirement. Claim 47 stands rejected under 35 U.S.C. § 112 as lacking antecedent basis for claim term “the paramagnetic species or chromophores”. Claims 35-36, 38-40 and 42-43 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Dumoulin et al. (US Patent No. 5626137). Claims 41, 44-45, 47, 49-60, 62-63 and 65 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Dumoulin (USPN 5626137) in view of Cates et al. (WO 97/37178).

The application has been amended. The claims have been amended. Specifically, claims 45, 48, 52, 61 and 64 have been amended and claim 67 has been newly added.

Claim 45 has been amended by combining it with previously presented claim 35, now cancelled. The term “solid agent” of previously presented claim 45 has been replaced by the term “solid compound” based on the description on page 9, lines 24-26. The solid

compound has been limited to solid compounds containing non zero nuclear spin nuclei selected from ^{13}C or ^{15}N . Basis for this limitation can be found on page 12, line 16.

Claim 48 has been amended by making it dependent on claim 45.

Claim 52 has been amended by replacing the term “solid agent” by “solid compound” based on the description on page 9, lines 24-26. The solid compound has been limited to solid compounds containing non zero nuclear spin nuclei selected from ^{13}C or ^{15}N . Further, the preferred embodiment in parentheses has been made subject matter of newly added claim 67.

Claim 61 has been amended by combining it with claim 58, now cancelled.

Claim 64 has been amended by combining it with claim 62, now cancelled.

Claim 67 has been added and covers the preferred embodiment of the aqueous medium mentioned in claim 52. This preferred embodiment was part of the previously presented claim 52.

Applicant respectfully submits that none of the amendments constitute new matter in contravention of 35 U.S.C §132. Reconsideration is respectfully requested.

First, Applicant gratefully acknowledges the indicated allowability of claims 37, 61 and 64.

In view of the Examiner's comments regarding the Information Disclosure Statement, another IDS and PTO Form 1449 is transmitted herewith.

Double patenting

Claims 35, 40, 41, 46, 47, and 66 stand rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-2 and 10-12 of United States Patent No. 6,311,086. Claims 35 and 46-47 stand rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-2 and 10-12 of United States Patent No. 6,278,893. Applicant respectfully submits that these rejections stand obviated by the deletion of each of the rejected claims. Reconsideration and withdrawal of the rejections are respectfully requested.

Claim objections

Claims 39 stands objected under 37 CFR 1.75(c) while claim 49 stands objected to for lacking antecedent basis for a claim term. Applicant respectfully submits that these rejections stand obviated by the deletion of each of the rejected claims. Reconsideration and withdrawal of the rejections are respectfully requested.

Section 112 Rejection

Claims 45 and 52 stand rejected under 35 U.S.C. § 112 as failing to comply with the enablement requirement. This rejection is respectfully traversed.

Claim 45 limits the compounds to compounds containing a non zero nuclear spin nucleus selected from ^{13}C or ^{15}N and being soluble in aqueous media. As described in the specification on page 12, line 15 such compounds have a long T_1 , i.e. the decay of nuclear spin polarization in the polarised compound is slow enough to make such polarised compounds useful as MR imaging agents. Their use as MR imaging agents also implies that the compounds need to be of low toxicity.

The frequency or wavelength of light which needs to be used to generate an excited polarized triplet electronic state is explained in detail in the specification on page 7, last paragraph to page 9, first paragraph. The specific wavelength is dependent on the compound used and is easily determined by the person of ordinary skill by calculating the energy difference between the S_0 and S_1 / S_2 level (ground singlet electronic state and excited singlet electronic state) and the energy difference between T_1 and T_2 , in case the method of claim 56 is used. Applicant respectfully submits that the claim thereby is fully enabled by the specification. Reconsideration and withdrawal of the rejection are respectfully requested.

Claim 47 stands rejected under 35 U.S.C. § 112 as not having an antecedent basis for the limitation of claim 47. This rejection stands obviated as claim 47 has been cancelled. Reconsideration and withdrawal of the rejection are respectfully requested.

Section 102(b) Rejection

Claims 35-36, 38-40 and 42-43 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Dumoulin et al. (US Patent No. 5626137). This rejection stands obviated by the cancellation of these claims. Reconsideration and withdrawal of the rejection are respectfully requested.

Section 103 Rejection

Claims 41, 44-45, 47, 49-60, 62-63 and 65 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Dumoulin (USPN 5626137) in view of Cates et al. (WO 97/37178). Applicant notes that claims 41, 44, 47-52, 59-60, 62-62 and 65 have been cancelled, thereby obviating the rejection for these claims. Claims 45 and 53-57, however, still stand rejected. This rejection is respectfully traversed.

Dumoulin is completely silent about “forming a nuclear spin polarised MR imaging agent *by* irradiating a solid compound containing a non zero nuclear spin nucleus selected from ^{13}C or ^{15}N and having a singlet electronic ground state with light to generate an excited polarized triplet electronic state of said solid compound and transforming electronic polarization of said solid compound into a nuclear spin polarization”, which is an essential feature of claims 45 and 52 (where claims 53-57 are dependent on).

Cates et al. teach the accumulation of hyperpolarized ^{129}Xe and is also silent about “forming a nuclear spin polarised MR imaging agent by irradiating a solid compound

containing a non zero nuclear spin nucleus selected from ^{13}C or ^{15}N and having a singlet electronic ground state with light to generate an excited polarized triplet electronic state of said solid compound and transforming electronic polarization of said solid compound into a nuclear spin polarization”, which is an essential feature of claims 45 and 52 (where claims 53-57 are dependent on).

Thus, the combined teachings of Cates et al. and Dumoulin et al. fail to disclose, teach, or suggest the limitations of the amended claims. Reconsideration and withdrawal of the rejection are respectfully requested.

Allowable subject matter

Claims 61 and 64 were rewritten in independent form including all of the limitations of the base claims as suggested by the Examiner. Thus claims 61 and 64 should be allowable.

In view of the amendments and remarks hereinabove, Applicant respectfully submits that the present application, including claims 45, 48, 52-57, 61, 64 and 67, is in condition for allowance. Favorable action thereon is respectfully requested.

The Director is authorized to charge Deposit Account No. 502-665 for any additional fees incurred by the entry of this amendment.

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Any questions with respect to the foregoing may be directed to the Applicant's undersigned counsel at the telephone number below.

Respectfully submitted,

/Robert F. Chisholm/
Robert F. Chisholm
Reg. No. 39,939

GE Healthcare, Inc.
101 Carnegie Center
Princeton, NJ 08540
Phone (609) 514-6905

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